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Got a Better Idea?: Promoting Greenhouse Gas Regulations Through Solution-Based Informal Rulemaking

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Got a Better Idea?: Promoting Greenhouse Gas Regulations Through Solution-Based Informal Rulemaking

ABSTRACT

In September 2013, the US Environmental Protection Agency (EPA) proposed a rule regulating greenhouse gas emissions from newly constructed, coal-fired power plants. Coal industry lawyers immediately began preparing for litigation. Like many industry-led arbitrary and capricious challenges, their goal is to stop the regulations from moving forward. This Note analyzes the new rule, concluding that although the EPA’s rule is legally sound, it does have some potential weaknesses. Rather than merely blocking the regulations through litigation, however, this Note proposes that interest groups should instead submit their own solutions during the notice-and-comment rulemaking process, which would reduce regulatory gridlock and encourage meaningful debate.

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Anthropogenic climate change is an alarming scientific fact.¹ Greenhouse gases, most notably carbon dioxide, are causing global temperatures to rise at an unprecedented rate.² The largest sources of domestic emissions are coal-fired power plants.³ They released 1,722.7 million metric tons of carbon dioxide into the atmosphere in 2011 alone,⁴ accounting for over a quarter of annual US greenhouse gas emissions.⁵ In the June 25, 2013 speech introducing his Climate Action Plan, President Barack Obama directed the Environmental Protection Agency (EPA) to promulgate standards for new and existing power plants under the statutory authority of the Clean Air Act (CAA).⁶ Three months later, the EPA proposed its first rule under this call to action—"the New Source Rule"—the first major greenhouse

1. See U.S. DEP'T OF STATE, UNITED STATES CLIMATE ACTION REPORT 2014, at 6, available at <http://www.state.gov/documents/organization/219038.pdf> ("The most significant long-term environmental challenge facing the United States and the world is climate change that results from anthropogenic emissions of [greenhouse gases]."); see also John Cook et al., *Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature*, 8 ENVTL. RES. LETTERS, no. 2, 2013, at 3, available at http://iopscience.iop.org/1748-9326/8/2/024024/pdf/1748-9326_8_2_024024.pdf (concluding that 97.1 percent of peer-reviewed scientific literature endorsed the consensus that climate change is occurring due to human consumption); *Scientific Consensus on Global Warming*, UNION OF CONCERNED SCIENTISTS, http://www.ucsusa.org/global_warming/science_and_impacts/science/scientific-consensus-on.html (last updated Mar. 7, 2011) (listing links to documents attesting to the scientific community's consensus that climate change is real and is caused by humans).

2. See *Causes of Climate Change*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/climatechange/science/causes.html> (last updated Mar. 18, 2014). Greenhouse gases contribute to climate change by absorbing and trapping heat in the atmosphere. Buildup of these gases causes the planet to warm, causing dangerous effects on the climate, human health, and ecosystems. See, e.g., *Climate Change: Basic Information*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/climatechange/basics/> (last updated Mar. 18, 2014). The Intergovernmental Panel on Climate Change has identified six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride. See *Frequently Asked Questions*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, <http://www.ipcc-nggip.iges.or.jp/faq/faq.html> (last visited Oct. 9, 2014).

3. See *Sources of Greenhouse Gas Emissions*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/climatechange/ghgemissions/sources.html> (last updated Aug. 20, 2014).

4. See U.S. ENVTL. PROT. AGENCY, EPA 430-R-13-001, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2011, at 3-6 tbl.3-5 (2013), available at <http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2013-Main-Text.pdf>.

5. See *Sources of Greenhouse Gas Emissions*, *supra* note 3.

6. See President Barack Obama, Remarks on Climate Change at Georgetown University (June 25, 2013) (transcript available at <http://www.whitehouse.gov/the-press-office/2013/06/25/remarks-president-climate-change>).

gas regulation affecting stationary sources.⁷ The New Source Rule identifies two types of technology to achieve the standard: fuel plants with new generation technologies (primarily natural gas), or adopt costly carbon capture and sequestration (CCS) technology.⁸

Environmental legislation and regulations have prompted technological innovation in the past,⁹ but not without vehement litigation or other delay tactics from resistant interest groups.¹⁰ The coal industry—forced to choose between expensive CCS installation or surrendering to a natural gas takeover of the US electricity sector—already plans to sue the EPA.¹¹ The industry will claim that the agency has reached an arbitrary and capricious decision for failing to address the required statutory factors, including costs and whether the technology is “achievable” and “adequately demonstrated.”¹² With only a handful of domestic CCS projects currently underway, some of which face myriad budget issues, the rule is susceptible to such a line of attack.¹³

The EPA’s experts have evaluated scientific studies and modeled predictions to determine that CCS is the best system for coal-fired facilities to achieve significant carbon emission reductions.¹⁴

7. See Jean Chemnick, *EPA’s New Carbon Rule Sparks Battle Over CCS, Legal Challenges Likely*, GREENWIRE (Sept. 22, 2013), <http://www.eenews.net/greenwire/2013/09/20/stories/1059987620>.

8. See Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electricity Generating Units, 79 Fed. Reg. 1429, at § I.A.2 (proposed Jan. 8, 2014) [hereinafter Standards of Performance].

9. An early example of technology-forcing environmental legislation occurred after the Cuyahoga River fire of 1967, which was caused by extreme water pollution. Congress passed the Clean Water Act in 1972, forcing polluters to adopt various forms of water treatment technology. See Mark J. Kovasity, *The Cuyahoga River Fire*, ENVIROMENTOR 14 (2013), available at <http://www.asse.org/assets/1/7/MarkKovasityArticle.pdf>.

10. See, e.g., *Portland Cement Ass’n v. Train*, 513 F.2d 506, 508 (D.C. Cir. 1975); *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 429 (D.C. Cir. 1973); see also Jean Chemnick, *More Questions Raised About EPA Process for New Power Plant Rule*, GREENWIRE (Feb. 4, 2013), <http://www.eenews.net/greenwire/2014/02/04/stories/1059993974> (explaining that industry interests may pursue procedure-based strategies, either through litigation or alleging that the EPA has violated the Data Quality Act).

11. See Chemnick, *supra* note 7 (quoting a utility company attorney, who stated that the chance of litigation over the rule is at “100 percent”).

12. 42 U.S.C. § 7411(a)(1) (2012). The industry will likely also argue that the EPA has exceeded its statutory authority by forcing technology without properly considering costs or achievability. Because arbitrary and capricious challenges frequently hinge on whether the agency has adequately considered statutorily required factors, this Note focuses on the coal industry’s probable arbitrary and capricious challenge. See, e.g., *Nat’l Lime Ass’n v. EPA*, 233 F.3d 625, 640 (D.C. Cir. 2000) (upholding regulation despite industry’s argument that the EPA did not adequately consider costs); *Bunker Hill Co. v. EPA*, 572 F.2d 1286, 1304 (9th Cir. 1977) (holding that an EPA regulation was arbitrary and capricious because the technology was not adequately demonstrated and the costs were too high).

13. See Chemnick, *supra* note 7.

14. See Standards of Performance, *supra* note 8, at § I.B.5.

Trade groups, on the other hand, will assuredly present conflicting data to argue that CCS is exorbitantly costly and not technologically feasible.¹⁵ This Note argues that despite the rule's weaknesses, the EPA has adequately justified its new standard and therefore it will likely withstand the arbitrary and capricious standard of review.¹⁶ Nonetheless, the ease with which opposed interest groups can delay agencies' solutions demonstrates a larger problem with the adversarial nature of today's informal rulemaking procedures. To address the current regulatory impasse between regulator and regulated entity, this Note also proposes a new process for interest groups to more effectively engage in rulemaking and reduce regulatory gridlock—asking parties to offer their own solutions through a modified informal rulemaking procedure, or “solution-based informal rulemaking.”¹⁷

Part I discusses the framework and history of the New Source Performance Standards (NSPS) provision of the CAA, the arbitrary and capricious standard of review, and the details of the proposed New Source Rule. Part II analyzes the Rule in light of the factors named in the CAA, and argues that despite cost and technology challenges surrounding CCS, the agency has provided reasonable and adequate justifications. Although the New Source Rule should withstand an arbitrary and capricious challenge, it does not save the EPA or other agencies from defending against future litigation or delay tactics. To remedy this problem, Part III proposes that interested parties should offer their own solutions to the regulatory problem during a modified notice-and-comment period, rather than merely litigating after a rule has been finalized. The coal industry believes CCS is an unworkable proposal, but if forced to weigh the same factors as the EPA, could they come up with a better solution?

I. THE LITIGATION BACKDROP: THE EPA'S CAA AUTHORITY, THE ARBITRARY AND CAPRICIOUS STANDARD OF REVIEW, AND THE NEW SOURCE RULE

The EPA is no stranger to the courtroom; regulated entities, environmental groups, or both challenge nearly every regulation it promulgates.¹⁸ The Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electricity Generating Units

15. See discussion *infra* Part II.

16. See discussion *infra* Part II.

17. See discussion *infra* Part III.

18. See, e.g., *Massachusetts v. EPA*, 549 U.S. 497 (2007); *Appalachia Power Co. v. EPA*, 135 F.3d 791 (D.C. Cir. 1998); *Ethyl Corp. v. EPA*, 51 F.3d 1053 (D.C. Cir. 1995).

(the New Source Rule) will be no exception.¹⁹ Although the EPA has authority to issue greenhouse gas regulations for stationary sources under the CAA, Section 111(b), industry groups will challenge the EPA's interpretation of the "Standard of Performance" definition.²⁰ The industry will argue that the EPA's decision was arbitrary and capricious, but with an abundance of case law permitting the EPA to base its rules on reasonable predictions, a reviewing court should hold in favor of the agency.²¹

A. The EPA's CAA Authority to Regulate Greenhouse Gases

The CAA was originally enacted in 1963, but the rising environmental movement of the late sixties and seventies spurred a 1970 amendment that established the NSPS provision.²² The statute itself, its legislative history, case law, and the EPA's website all reveal that technological innovation was one of the central purposes of the 1970 amendment.²³ The new section directed the EPA to regulate air pollutants that were "requisite to protect the public health."²⁴ As a natural element of the atmosphere, carbon dioxide was not originally considered harmful to public health. Thus, after the initial amendment, the EPA could not regulate carbon emitters such as power plants under Section 111.²⁵ But in the landmark case *Massachusetts v. EPA*, the Supreme Court held that greenhouse gas emissions meet the CAA definition of "air pollutant."²⁶ There, environmental groups argued that because carbon dioxide contributes to global warming, the EPA was required to regulate carbon

19. See Chemnick, *supra* note 7.

20. See Clean Air Act § 111(a)–(b), 42 U.S.C. § 7411(a)–(b) (2012).

21. See Administrative Procedure Act, 5 U.S.C. § 706 (2012).

22. See generally Clean Air Act, 42 U.S.C §§ 7401–7626 (2012).

23. See, e.g., 42 U.S.C. § 7401(b)(2), (4) (stating that two of the statute's purposes are "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution" and "to encourage and assist the development and operation of regional air pollution prevention and control programs."); *Wis. Elec. Power Co. v. Reilly*, 893 F.2d 901, 909 (7th Cir. 1990) ("[One of] the basic goals of the 1977 Amendments [was] technology-forcing. The legislative history suggests and courts have recognized that in passing the Clean Air Act Amendments, Congress intended to stimulate the advancement of pollution control technology."); *Sierra Club v. Costle*, 657 F.2d 298, 346 (D.C. Cir. 1981); *Progress Cleaning the Air and Improving People's Health*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/air/caa/progress.html#clean> (last updated Apr. 22, 2014) (listing eleven different technologies developed as a result of CAA regulations); see also *Forcing Technology: The Clean Air Act Experience*, 88 YALE L.J. 1713, 1714 (1979).

24. 42 U.S.C. § 7409(b)(1).

25. See John M. Broder, *E.P.A. Expected to Regulate Carbon Dioxide*, N.Y. TIMES, Feb. 18, 2009, <http://www.nytimes.com/2009/02/19/science/earth/19epa.html?pagewanted=all&r=0>.

26. See *Massachusetts v. EPA*, 549 U.S. 497, 506 (2007); 42 U.S.C. § 7521(a)(1).

emissions.²⁷ The CAA mandates the EPA to regulate emissions that “endanger public health or welfare,”²⁸ which includes “effects on . . . weather and . . . climate.”²⁹ The Supreme Court noted that carbon dioxide “fit[s] well within the Clean Air Act’s capacious definition of ‘air pollutant’” and remanded the case.³⁰ Upon remand, the EPA found that six greenhouse gases, including carbon dioxide, threatened public health and subsequently signed an Endangerment Finding, a prerequisite to regulating carbon emissions.³¹

The EPA’s authority to regulate new sources of pollution derives from the CAA, Section 111(b), which requires the EPA to establish technology-based standards for new air pollution sources.³² In setting the NSPS, the EPA must consult its experts to determine what technology is the “best system of emission reduction” (BSER).³³ This term is defined at Section 111(a)(1), and requires the Administrator to consider “the cost of achieving such reduction,” “nonair quality health and environmental impact[s],” and “energy requirements.”³⁴ The Administrator must also determine that the technology is “achievable” and “has been adequately demonstrated.”³⁵ The US Court of Appeals for the District of Columbia case law further dictates that the EPA must consider the amount of air pollution reduction and whether the regulation forces technological innovation.³⁶ Because the EPA has identified CCS as the BSER for

27. See *Massachusetts*, 549 U.S. at 510.

28. 42 U.S.C. § 7521(a)(1).

29. 42 U.S.C. § 7602(h).

30. *Massachusetts*, 549 U.S. at 532. The CAA defines “air pollutant” as “any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive (including source material, special nuclear material, and byproduct material) substance or matter which is emitted into or otherwise enters the ambient air.” 42 U.S.C. § 7602(g).

31. See 42 U.S.C. § 7411(b)(1)(A); Broder, *supra* note 25. *Massachusetts v. EPA* was based on the CAA, Section 202(a)(1), which governs mobile sources (i.e., motor vehicles). The Endangerment Finding, however, automatically triggered other CAA programs according to long-standing agency interpretation. See *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/climatechange/endangerment/> (last updated Nov. 22, 2013).

32. See 42 U.S.C. § 7411; see also DAVID R. WOOLEY & ELIZABETH M. MORSS, CLEAN AIR ACT HANDBOOK § 4:1 (2014).

33. 42 U.S.C. § 7411(a)(1).

34. *Id.*

35. *Id.*

36. See *Sierra Club v. Costle*, 657 F.2d 298, 326 (D.C. Cir. 1981) (“[W]e can think of no sensible interpretation of the statutory words ‘best technological system’ which would not incorporate the amount of air pollution as a relevant factor to be weighed when determining the optimal standard for controlling . . . emissions.”); *id.* at 346 (“Our interpretation of section 111(a) is that the mandated balancing of cost, energy, and nonair quality health and environmental factors embraces consideration of technological innovation as part of that balance.”)

coal-fired power plants, the coal industry will likely argue CCS is prohibitively expensive, not achievable, and not “adequately demonstrated.”³⁷

There is no bright line number for the EPA to rely on for cost consideration. The D.C. Circuit has forbidden price tags that are “exorbitantly costly,”³⁸ “greater than the industry could bear and survive,”³⁹ or “excessive.”⁴⁰ The reviewing court considers not only the costs of installation and maintenance, but also whether the costs would be passed on to consumers and how much those prices would increase.⁴¹ But the CAA does not require a rigid cost-benefit analysis, due partially to the extreme difficulty in quantifying benefits of improved air quality.⁴² Rather, as long as the EPA has engaged in a reasoned consideration of costs, the rule will be upheld.⁴³

The standard of performance definition is also limited to standards that are “achievable” through the BSER that “the Administrator determines has been adequately demonstrated.”⁴⁴ These terms were at issue in *Portland Cement v. Ruckelshaus*, and the court held in favor of the EPA.⁴⁵ By equating achievability with “technological feasibility,” the court granted the EPA significant deference in interpreting feasibility.⁴⁶ Because Section 111(b) looks to the future—it regulates all *new* sources of air pollution after all—the agency “may make a projection based on existing technology, though that projection is subject to the restraints of reasonableness and cannot be based on a ‘crystal ball’ inquiry.”⁴⁷ In other words, if the EPA reasonably predicts that the technology will be more widely available in the future based on the current state of technology, then the agency has shown that the technology is “achievable.”⁴⁸ Later cases have continued to hold that technology-based standards are

37. See Chemnick, *supra* note 7.

38. *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973); *Lignite Energy Council v. EPA*, 198 F.3d 930, 933 (D.C. Cir. 1999).

39. *Portland Cement Ass’n v. Train*, 513 F.2d 506, 508 (D.C. Cir. 1975).

40. *Costle*, 657 F.2d at 343.

41. See, e.g., *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375, 387–88 (D.C. Cir. 1973) (superseded by statute on other issues); *Costle*, 657 F.2d at 313.

42. See *Portland Cement*, 486 F.2d at 387.

43. See *Essex Chem.*, 486 F.2d at 438 (citing *Portland Cement*, 486 F.2d at 387).

44. 42 U.S.C. § 7411(a)(1) (2012).

45. See 486 F.2d at 390.

46. See *id.* at 391.

47. *Id.*

48. See *id.*

achievable if the technology is reasonably projected to be available to new sources at the time of their construction.⁴⁹

The EPA's standard does not have to be continuously achievable by every single regulated entity, which both the legislative history of the CAA's 1970 Amendments and case law make clear.⁵⁰ For instance, another early Section 111 case, *Essex Chemical Corp. v. Ruckelshaus*, upheld a standard as "achievable" despite test data that seemingly suggested otherwise.⁵¹ During testing, the plant challenging the regulation was only able to achieve emissions levels below or at the standard on three occasions, and emitted above the standard sixteen times.⁵² The fact that the plant had achieved the standard at least a few times was sufficient for the court to deem the standard "achievable" and "adequately demonstrated."⁵³

Finally, the EPA may tailor its regulations based on industry trends and future projections.⁵⁴ In *Portland Cement v. EPA*, the EPA set an NSPS for modified stationary sources, but the regulated industry argued that the standard was arbitrary and capricious because the EPA had not adequately considered the effect of the rule on older facilities.⁵⁵ The EPA did, in fact, tailor the rule to newer facilities, because industry data and predictions showed that a majority of companies were shutting down older facilities rather than retrofitting them with newer technology.⁵⁶ The court permitted the agency to focus primarily on newer facilities based on that data, and held that the rule was not arbitrary and capricious.⁵⁷ These cases demonstrate that the EPA may make reasonable predictions while considering the CAA's limiting factors on BSERs.

B. The Arbitrary and Capricious Standard of Review

According to the Administrative Procedure Act (APA), Section 706, a reviewing court shall set aside any agency action deemed

49. See, e.g., *Lignite Energy Council v. EPA*, 198 F.3d 930, 934 (D.C. Cir. 1999) (per curiam); *Nat'l Asphalt Pavement Ass'n v. Train*, 539 F.2d 775, 785 (D.C. Cir. 1976).

50. See, e.g., S. Rep. 91-1116, at 16 (1970), available at <http://nepis.epa.gov/Exe/ZyPDF.cgi/20016BLL.PDF?Dockey=20016BLL.PDF> ("Major new facilities such as electric generating plants . . . must be controlled to the maximum practicable degree regardless of their location and industrial operations.") (emphasis added); *Essex Chem.*, 486 F.2d at 427.

51. See *Essex Chem.*, 486 F.2d at 440.

52. *Id.* at 437.

53. See *id.* at 440.

54. See *Portland Cement Ass'n v. EPA*, 665 F.3d 177, 190 (D.C. Cir. 2011) (per curiam).

55. See *id.*

56. See *id.*

57. See *id.*

arbitrary or capricious.⁵⁸ A court may determine an agency's decision is arbitrary and capricious if it has:

[R]elied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.⁵⁹

In other words, if a statute instructs an agency to consider a specific factor—costs, for instance—but the agency fails to consider it or provides insufficient data to support its conclusion, a reviewing court should set aside the action as unlawful.⁶⁰

Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co. requires agencies to adequately explain their underlying rationale for a regulation, but their expertise is accorded significant deference, partially because agencies specialize in a specific issue or area of the law.⁶¹ If Congress has penned an ambiguous statute, a reviewing court should accept the agency's interpretation as long as it is reasonable.⁶² This doctrine is commonly known as "*Chevron* deference."⁶³ Relying on the EPA's scientists, engineers, and lawyers, the D.C. Circuit and other reviewing courts will not interfere with EPA regulations, as long as the agency has "acted within its delegated statutory authority, considered all of the relevant factors, and demonstrated a reasonable connection between the facts on the record and its decision."⁶⁴

Deferring to experts is especially crucial for a statute as "unwieldy and science-driven" as the CAA.⁶⁵ For example, in *Appalachia Power Co. v. EPA*, a challenging utility company failed to show that the EPA's regulation of nitrogen oxide emissions was arbitrary and capricious.⁶⁶ The company claimed the EPA had omitted certain variables used in their analysis.⁶⁷ However, the utility company could not prove that these additional, unaccounted-for factors would have a significant effect on nitrogen oxide emissions.⁶⁸

58. See 5 U.S.C. § 706(2)(A) (2012).

59. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

60. See, e.g., *Nat'l Lime Ass'n v. EPA*, 233 F.3d 625, 640 (D.C. Cir. 2000); *Lignite Energy Council v. EPA*, 198 F.3d 930, 933 (D.C. Cir. 1999) (per curiam).

61. See *Chevron, U.S., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 844 (1984); *Appalachia Power Co. v. EPA*, 135 F.3d 791, 797 (D.C. Cir. 1998).

62. See *Chevron*, 467 U.S. at 844.

63. See *id.* For further explanation of *Chevron* deference, see, for example, Kenneth W. Starr, *Judicial Review in the Post-Chevron Era*, 3 YALE J. ON REG. 283, 285–88 (1986).

64. *Ethyl Corp. v. EPA*, 51 F.3d 1053, 1064 (D.C. Cir. 1995).

65. See *Appalachia Power*, 135 F.3d at 802.

66. See *id.* at 797.

67. See *id.* at 804.

68. See *id.*

Determining control technology standards required such a high degree of scientific expertise that the court would hold agency action arbitrary and capricious “only when the model bears no rational relationship to the characteristics of the data to which it is applied.”⁶⁹

That deference is not unlimited, however. When the agency’s rationale is inconsistent or scientifically insufficient, arbitrary and capricious challenges may succeed.⁷⁰ The court rejected the EPA’s regulation in *Bunker Hill Co. v. EPA* because their rationale did not sufficiently address the problem of feasibility.⁷¹ First, although the EPA had relied on a list of other factories that used sulfur burners, the agency did not analogize those factories to Bunker Hill, rendering the list “meaningless.”⁷² Second, the EPA’s expert testimony contained internal inconsistencies regarding scientific data, calling into question the agency’s logic.⁷³ Thus, the EPA’s decision was not “an exercise of reasoned discretion,” and did not meet the *State Farm* test.⁷⁴

In sum, the EPA must have considered cost, achievability, and whether the technology has been “adequately demonstrated” to determine that CCS is the BSER for new coal-fired power plants.⁷⁵ Failure to appropriately consider all factors could result in the regulation being set aside as arbitrary and capricious.⁷⁶ The D.C. Circuit’s explication of these terms appears to grant the EPA significant leeway in terms of their chosen technology’s commercial status, but as Part II of this Note demonstrates, the New Source Rule may not be completely insulated from industry challenges.⁷⁷

C. Forcing CCS Technology: The Proposed Rule

Carbon dioxide is the leading greenhouse gas contributing to anthropogenic climate change.⁷⁸ Power plants are a logical first target for regulating sources of carbon emissions due to their significant carbon dioxide emissions.⁷⁹ Under the CAA, Section 111(b), the New Source Rule applies only to new power plants; a rule for existing

69. See *id.* at 797, 802.

70. See, e.g., *Bunker Hill Co. v. EPA*, 572 F.2d 1286, 1304 (9th Cir. 1977).

71. See *id.*

72. *Id.* at 1297.

73. See *id.* at 1303.

74. See *id.* at 1304.

75. See 42 U.S.C. § 7411(a)(1) (2012).

76. See discussion *infra* Part II.B.

77. See *infra* Part II.

78. See U.S. ENVTL. PROT. AGENCY, *supra* note 4, at 4 tbl.ES-1.

79. See *id.* at 3-1.

sources was released on June 2, 2014.⁸⁰ The New Source Rule establishes a carbon emissions cap at 1,100 pounds of carbon dioxide per megawatt-hour for new coal-fired plants, and 1,000 pounds per megawatt-hour for new natural gas-fired plants.⁸¹ Coal-fired plants currently emit an average of 1,768 pounds per megawatt-hour.⁸² To account for the 668-pound difference, the EPA proposes two types of technology that plants can embrace as a best system of emissions reduction: either install CCS or adopt natural gas-fueled systems.⁸³ CCS purports to reduce carbon emissions by up to 90 percent,⁸⁴ while natural gas emits approximately half as much carbon as coal-fired plants.⁸⁵

CCS is a three-part process.⁸⁶ First, capture technologies separate carbon dioxide from other gases emitted by electricity generation.⁸⁷ Second, ships or pipelines transport the captured carbon to its final storage destination.⁸⁸ Finally, the carbon is injected into underground geological formations, such as depleted gas and oil reservoirs or saline aquifers.⁸⁹ CCS's emission reduction potential has made it a hot topic amongst policymakers and academics for years,⁹⁰

80. See *What EPA Is Doing*, U.S. ENVTL. PROTECTION AGENCY, <http://www2.epa.gov/carbon-pollution-standards/what-epa-doing> (last updated June 2, 2014). The CAA, Section 111(b), governs New Sources; Section 111(d) governs Existing Sources. See *id.*

81. See Standards of Performance, *supra* note 8, at § I.A.1. This new standard replaces the older version of the rule, which set the limit at one thousand regardless of the fossil fuel utilized. See Chemnick, *supra* note 7.

82. Lenny Bernstein & Juliet Eilperin, *EPA Moves to Limit Emissions of Future Coal- and Gas-Fired Power Plants*, WASH. POST, Sept. 19, 2013, http://articles.washingtonpost.com/2013-09-19/national/42221707_1_emissions-new-coal-plant-clean-air-act.

83. See Standards of Performance, *supra* note 8, at §§ I.B.5–6. The EPA does not mandate that these specific technologies must be used as part of the rule; rather these types of technology are the best options for achieving the standard. See *id.*

84. See *id.* at § I.B.5.

85. See *id.* at § I.B.6.

86. *What Is CCS?*, CARBON CAPTURE & STORAGE ASS'N, <http://www.ccsassociation.org/what-is-ccs/> (last visited Nov. 11, 2014).

87. *Capture*, CARBON CAPTURE & STORAGE ASS'N, <http://www.ccsassociation.org/what-is-ccs/capture/> (last visited Nov. 11, 2014).

88. *Transport*, CARBON CAPTURE & STORAGE ASS'N, <http://www.ccsassociation.org/what-is-ccs/transport/> (last visited Nov. 11, 2014).

89. *Storage*, CARBON CAPTURE & STORAGE ASS'N, <http://www.ccsassociation.org/what-is-ccs/storage/> (last visited Nov. 11, 2014).

90. See, e.g., Nadine R. Hoffman, *The Emergence of Carbon Sequestration: An Introduction and Annotated Bibliography of Legal Aspects for CCS*, 29 PACE ENVTL. L. REV. 218 (2011); Alexandra B. Klass & Elizabeth J. Wilson, *Climate Change and Carbon Sequestration: Assessing a Liability Regime for Long-Term Storage of Carbon Dioxide*, 58 EMORY L.J. 103 (2008); Will Reisinger et al., *Reconciling King Coal and Climate Change: A Regulatory Framework for Carbon Capture and Storage*, 11 VT. J. ENVTL. L. 1 (2009).

but the EPA has only now introduced it as policy.⁹¹ Two domestic plants installing the technology are currently under construction and are both about 75 percent complete: Kemper County Energy Facility in Mississippi,⁹² and SaskPower's Boundary Dam in Estevan, Saskatchewan.⁹³ Summit Power's Texas Clean Energy Project and the Hydrogen Energy California Project are also incorporating CCS into their construction; and NRG Energy is developing a commercial-scale CCS project southwest of Houston, Texas, predicted to operate by 2015.⁹⁴

Utilities may alternatively choose to fuel their plants with natural gas to meet the standard.⁹⁵ Natural gas has experienced a surge in popularity within the last few decades after the discovery of vast reserves of the resource.⁹⁶ Environmentalists prefer it because it burns cleaner than coal, releasing 45 percent less carbon dioxide.⁹⁷ Natural gas has been used in the United States since as early as 1821, which means that scientists have had almost two centuries to develop the requisite technology.⁹⁸ More extensive technology also means cheaper installation and maintenance costs.⁹⁹ The EPA has determined that utilities can choose between these two technology options, but the costs and technological uncertainty of CCS has the coal industry ready to stop the New Source Rule in its tracks.¹⁰⁰

91. See generally EXEC. OFFICE OF THE PRESIDENT, THE PRESIDENT'S CLIMATE ACTION PLAN (2013), available at <http://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf> (introducing the President's climate change policies, which include CCS).

92. See *Kemper FAQ*, KEMPERPROJECT.ORG, <http://kemperproject.org/kemper-faq/> (last visited Sept. 24, 2014).

93. See Standards of Performance, *supra* note 8, at § I.B.3.

94. See *id.*

95. See *id.* at § I.B.6.

96. See Robert Lenzner, *The Ten Reasons to Love Natural Gas*, FORBES (Aug. 21, 2012, 10:25 AM), <http://www.forbes.com/sites/robertlenzner/2012/08/21/the-exquisite-symmetry-of-the-natural-gas-revolution/>.

97. See *Natural Gas and the Environment*, NATURALGAS.ORG, <http://www.naturalgas.org/environment/naturalgas> (last updated Sept. 20, 2013).

98. See *History*, NATURALGAS.ORG, <http://www.naturalgas.org/overview/history> (last updated Sept. 20, 2013).

99. See Chris Nelder, *Is Natural Gas the Cheapest Path to Clean Grid Power?*, GREEN TECH MEDIA (Aug. 1, 2013), <http://www.greentechmedia.com/articles/read/is-natural-gas-the-cheapest-path-to-clean-grid-power>.

100. See Chemnick, *supra* note 7.

II. COURTS SHOULD UPHOLD THE NEW SOURCE RULE BECAUSE THE EPA HAS APPROPRIATELY BALANCED THE CAA FACTORS

Lawyers representing utility companies are already preparing to litigate the New Source Rule, which imposes undeniably high costs on their clients.¹⁰¹ The CAA's language could be problematic for the EPA on issues concerning cost and balancing whether CCS is achievable or adequately demonstrated.¹⁰² Because this rule is the first in history to regulate power plants' carbon emissions, predicting the Rule's fate is an inexact science.¹⁰³ However, despite the small number of aforementioned CCS projects in the United States, the EPA has met its statutory mandates. Further, Congress has assigned the task of balancing difficult questions of law, science, and policy to EPA experts, and a reviewing court should defer to their judgment.¹⁰⁴

A. CCS Costs Are Not Exorbitant

Section 111(a)(1) explicitly instructs the EPA to consider the costs of implementation, but does not provide much guidance on what cost consideration actually entails or how much weight this factor plays in the agency's overall BSER determination.¹⁰⁵ But industry groups may succeed with an arbitrary and capricious challenge if the EPA attempts to force a type of technology with costs that are "greater than the industry could bear and survive"¹⁰⁶ or "excessive."¹⁰⁷ For the New Source Rule, the industry will undoubtedly underscore the costs of CCS, while the EPA will analogize to prior D.C. Circuit case law holding in its favor.

The coal industry has accused the Obama administration of declaring a "war on coal" with the New Source Rule.¹⁰⁸ But because

101. See *id.*

102. See Clean Air Act § 111(a)(1); 42 U.S.C. § 7411(a)(1) (2012).

103. See *Carbon Pollution Standards: What EPA Is Doing*, U.S. ENVTL. PROTECTION AGENCY, <http://www2.epa.gov/carbon-pollution-standards/what-epa-doing> (last updated Oct. 28, 2014).

104. See Wendy Wagner, *The "Bad Science" Fiction: Reclaiming the Debate over the Role of Science in Public Health and Environmental Regulation*, 66 LAW & CONTEMP. PROBS. 63, 81, 85–86 (2003), available at <http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1296&context=lcp>.

105. See 42 U.S.C. § 7411(a)(1).

106. See *Portland Cement Ass'n v. Train*, 513 F.2d 506, 508 (D.C. Cir. 1975).

107. See *Sierra Club v. Costle*, 657 F.2d 298, 343 (D.C. Cir. 1981).

108. Dan Ferber, *Coal Plants Are Victims of Their Own Economics*, SCIENCE (Feb. 18, 2013, 11:48 AM), <http://news.sciencemag.org/2013/02/coal-plants-are-victims-their-own-economics>; see Chemnick, *supra* note 7.

CCS technology is new, it is expensive.¹⁰⁹ A new plant in Edwardsport, Indiana, has been described as “capture-ready,” but does not plan on installing CCS because of its \$380 million price tag, which does not include ongoing storage costs.¹¹⁰ The average coal-fired power plant reaps over \$4 billion in average annual profits, down from \$20 billion since the emergence of natural gas. Consequently, installation costs would be about 10.5 percent of one year’s profits.¹¹¹ However, that figure could be much higher. For example, the Kemper County facility has experienced a plethora of budget and scheduling issues related to their installation project.¹¹² The projected cost is now at \$5.5 billion, more than double the initial estimate.¹¹³ Some setbacks were out of the company’s control, such as bad weather or contractor and supplier delays.¹¹⁴ Others were due to miscalculating pipe length, thickness, or quantity.¹¹⁵ Regardless of the reasons, the high costs do not bode well for the EPA’s heavy reliance on the plant.¹¹⁶

Trade organizations have also characterized the proposal as an impermissible “de-facto fuel-switching mandate” by imposing such costs on the coal industry.¹¹⁷ Because natural gas generation has been commercially deployed, it is perceptibly cheaper and commercially demonstrated.¹¹⁸ Coal states’ comments on the proposal emphasized the larger negative economic impacts of the rule, including increasing

109. See Wendy Koch, *EPA Proposes Strict Emission Limits on New Power Plants*, USA TODAY, Sept. 20, 2013, <http://www.usatoday.com/story/news/nation/2013/09/19/epa-limits-emissions-coal-power-plants-carbon-capture-technology/2838391/>.

110. See Matthew L. Wald, *With Natural Gas Plentiful and Cheap, Carbon Capture Projects Stumble*, N.Y. TIMES, May 18, 2012, http://www.nytimes.com/2012/05/19/business/energy-environment/low-natural-gas-prices-threaten-carbon-capture-projects.html?_r=0.

111. See Ferber, *supra* note 108.

112. See Steven Mufson, *Intended Showcase of Clean-Coal Future Hits Snags*, WASH. POST, May 17, 2014, http://www.washingtonpost.com/business/economy/intended-showcase-of-clean-coal-future-hits-snags/2014/05/16/fc03e326-cfd2-11e3-b812-0c92213941f4_story.html?wprrs=rss_social-postbusinessonly.

113. See *id.*

114. See *id.*

115. See *Kemper County IGCC Fact Sheet: Carbon Dioxide Capture and Storage Project*, MASS. INST. OF TECH., <https://sequestration.mit.edu/tools/projects/kemper.html> (last modified Nov. 19, 2014).

116. See Mufson, *supra* note 112.

117. See Marlo Lewis, *EPA’s Carbon “Pollution” Rules: War on Coal by the Numbers*, GLOBALWARMING.ORG (June 9, 2014), <http://www.globalwarming.org/2014/06/09/epas-carbon-pollution-rules-war-on-coal-by-the-numbers/>; see also *NMA CEO Says EPA’s Power Plant Rule Gambles with the Economy*, PA. COAL ALLIANCE (Sept. 20, 2013, 12:18 PM), <http://www.pacoalalliance.com/nma-ceo-says-epas-power-plant-rule-gambles-with-the-economy/> (“By forcing power plants to abandon the use of the nation’s largest and most reliable source of affordable electricity, EPA is recklessly gambling with the nation’s energy and economic future.” (quoting National Mining Association President and CEO Hall Quinn)).

118. See Lewis, *supra* note 117.

unemployment and fluctuating utility prices passed on to consumers.¹¹⁹ The natural gas market has experienced price volatility in the past, and if prices continue to swing violently, it would affect consumers' electricity bills.¹²⁰ Despite the EPA's findings that the new standard will not create significant economic impacts on utilities¹²¹ or on customers,¹²² coal companies are armed with conflicting data to argue otherwise.¹²³

If the industry can prove that CCS costs are "exorbitant," then the EPA has arbitrarily and capriciously failed to consider costs.¹²⁴ To demonstrate this, however, coal plants will probably have to show that CCS costs are so excessive that it is financially prudent to cease operations completely.¹²⁵ For example, in *Bunker Hill*, a power plant successfully challenged an EPA determination because the plan "seriously risk[ed] closing down" the plant, making the regulation economically infeasible.¹²⁶ Theoretically, new smaller coal plants could more easily prove such a claim, but energy sector modeling predicts that few, if any, new coal-fired power plants will be built in the next decade.¹²⁷

When facing such challenges, the EPA has an abundance of case law on its side. No D.C. Circuit decision under Section 111 of the

119. See Abby L. Harvey, *EPA Receives More Than One Million Comments on NSPS, GHG MONITOR* (ExchangeMonitor Publ'ns & Forums, Inc., Wash., D.C.), May 16, 2014, available at <http://www.exchangemonitor.com/PDFs/GHG-vol-9-no-19.pdf>.

120. See Standards of Performance, *supra* note 8, at § II.C.2.a. This finding was based on a combination of US Energy Information Administration (EIA) power sector modeling projections, EPA power sector modeling projections, electric utility integrated resource planning documents, and projected new power plants reported by the industry to EIA. See U.S. ENVTL. PROT. AGENCY, EPA-452/R-13-003, REGULATORY IMPACT ANALYSIS FOR THE PROPOSED STANDARDS OF PERFORMANCE FOR GREENHOUSE GAS EMISSIONS FOR NEW STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS 5-1 (2013), available at <http://www.epa.gov/ttnecas1/regdata/RIAs/EGUGHGNewSourceStandardsRIA.pdf>.

121. See U.S. ENVTL. PROT. AGENCY, *supra* note 120, at 5-50 (explaining that the ability to sell captured carbon for enhanced oil recovery operations is one of the many reasons the costs are not exorbitant for utilities).

122. See *id.* at 4-31 (explaining that, while natural gas prices have been historically volatile, prices are predicted to stay relatively steady due to the discovery of vast reserves of shale gas and improvements in drilling techniques).

123. See Chemnick, *supra* note 7.

124. See, e.g., *Lignite Energy Council v. EPA*, 198 F.3d 930, 933 (D.C. Cir. 1999); *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973).

125. See, e.g., *Bunker Hill Co. v. EPA*, 572 F.2d 1286, 1301 (9th Cir. 1977).

126. See *id.* Under State Implementation Plan (SIP) provisions, states develop their own plans to implement new NAAQs, and the EPA must approve or disapprove the plan. Here, the EPA rejected a SIP and the resulting program was at issue. See *State Implementation Plan Overview*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/oar/urbanair/sipstatus/overview.html> (last updated Mar. 27, 2012).

127. See U.S. ENVTL. PROT. AGENCY, *supra* note 120, at 5-1.

CAA has invalidated a standard because it was too costly.¹²⁸ Rather, the court has upheld standards that have entailed high costs, even those that consumers may ultimately bear.¹²⁹ For instance, the *Portland Cement v. Ruckelshaus* court upheld a standard that accounted for 5–7 percent of plants' operating costs, and the *Sierra Club v. Costle* court upheld a standard that imposed "tens of billions of dollars" on the industry, which utilities were likely to pass on to consumers.¹³⁰

The New Source Rule is undeniably weakened by the dearth of commercial-scale CCS projects, but the costs it imposes should be upheld under the D.C. Circuit's precedent.¹³¹ The New Source Rule could be in trouble if facilities continue to face budget difficulties on par with the Kemper County plant.¹³² However, CCS costs will almost certainly decrease as the technology becomes more widely used and developed, decreasing the likelihood that future projects will face the difficulties of Kemper County.¹³³ The EPA has made a "reasonable" forecast in line with the standard set forth in *Portland Cement v. Ruckelshaus*.¹³⁴ The price of an analogous technology—the sulfur dioxide scrubber, which the coal industry similarly adopted due to CAA demands—has fallen by 30 percent since its initial adoption in the 1990s, a result of technological innovation and investment.¹³⁵ Although the proposed rule does not contain specific CCS implementation cost estimates, an Energy Information Administration (EIA) study from 2010 predicts that operating and maintenance costs for coal-fired plants with CCS will average approximately \$36 million per year, a fraction of a plant's annual profits.¹³⁶ The fact that several

128. See Standards of Performance, *supra* note 8, at § VI.D.2.a.ii. State Implementation Plans are a separate program under the CAA. See 42 U.S.C. § 7410 (2012).

129. See, e.g., *Sierra Club v. Costle*, 657 F.2d 298, 313 (D.C. Cir. 1981); *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375, 387–88 (D.C. Cir. 1973).

130. *Costle*, 657 F.2d at 313; see *Portland Cement*, 486 F.2d at 387–88.

131. See *Costle*, 657 F.2d at 410.

132. See Mufson, *supra* note 112.

133. See Standards of Performance, *supra* note 8, at § VII.F.5.c.

134. See *Portland Cement*, 486 F.2d at 391.

135. See DALLAS BURTRAW, COST SAVINGS SANS ALLOWANCE TRADES? EVALUATING THE SO₂ EMISSION TRADING PROGRAM TO DATE 13 (Res. For the Future, Discussion Paper 95-30-REV, 1996), available at http://www.rff.org/documents/RFF-DP-95-30-REV.pdf?origin=publication_detail; U.S. ENVTL. PROT. AGENCY, EPA-452/F-03-034, AIR POLLUTION CONTROL TECHNOLOGY FACT SHEET: FLUE GAS DESULFURIZATION 2, available at <http://www.epa.gov/ttn/catc1/dir1/ffdg.pdf>.

136. See U.S. ENERGY INFO. ADMIN., U.S. DEPT OF ENERGY, UPDATED CAPITAL COST ESTIMATES FOR ELECTRICITY GENERATION PLANTS 7 (2010), available at http://www.eia.gov/oiaf/beck_plantcosts/pdf/updatedplantcosts.pdf. These costs are reflected in US 2010 dollars. The \$36 million figure was reached by multiplying the nominal capacity by the O&M costs of coal-fired Single Unit IGCC plants with CCS. See *id.*

new coal-fired plants are incorporating CCS into their construction further demonstrates that the system is not unduly expensive.¹³⁷

The EPA has additionally predicted that nearly all projected electricity generating units will switch to natural gas in the future.¹³⁸ Coal-fired power plants have been on the decline for years. Since the mid-2000s, over 150 new plant construction plans have been canceled, many existing plants have closed due to increasing compliance costs, and in 2012 only one new coal-fired plant was built.¹³⁹ The EIA's 2013 Annual Energy Outlook reported only a modest number of planned coal-fired power plants, indicating that most future plants will utilize natural gas rather than coal.¹⁴⁰ Furthermore, due to worldwide policies pushing for cleaner energy sources, every other energy source has grown faster than coal, excluding liquids.¹⁴¹ Although precise predictions of future natural gas prices are not possible, advances in hydraulic fracturing and horizontal drilling techniques contribute to EIA's predictions that natural gas prices will remain relatively constant and thus continuously inexpensive for consumers.¹⁴² These predictions are based on carefully developed modeling systems and the industry's own documents and projections.¹⁴³

Finally, the EPA has suggested that facilities can sell captured carbon to generate supplementary revenue.¹⁴⁴ Enhanced oil recovery operations are one potential market for captured carbon.¹⁴⁵ Oil extractors have been using this technique for over forty years, because injecting carbon dioxide into reservoirs decreases oil viscosity and improves its flow rate, allowing for easier extraction.¹⁴⁶ The few CCS projects currently under development intend to employ this suggestion.¹⁴⁷ Additionally, companies have recently experimented with technology that can recycle captured carbon into baking soda,

137. See Standards of Performance, *supra* note 8, at § I.B.3.

138. See U.S. ENVTL. PROT. AGENCY, *supra* note 120, at 5-4.

139. See Ferber, *supra* note 108.

140. See U.S. ENERGY INFO. ADMIN., U.S. DEPT OF ENERGY, DOE/EIA-0383(2013), ANNUAL ENERGY OUTLOOK 2013, at 41 (2013), available at [http://www.eia.gov/forecasts/archive/aeo13/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/archive/aeo13/pdf/0383(2013).pdf).

141. See U.S. ENERGY INFO. ADMIN., U.S. DEPT OF ENERGY, DOE/EIA-0484(2013), INTERNATIONAL ENERGY OUTLOOK 2013, at 67 (2013), available at <http://www.eia.gov/forecasts/ieo/pdf/0484%282013%29.pdf>.

142. See U.S. ENVTL. PROT. AGENCY, *supra* note 120, at 4-31.

143. See *id.* at 5-1.

144. See Standards of Performance, *supra* note 8, at § VII.F.5.a.

145. See U.S. ENVTL. PROT. AGENCY, *supra* note 120, at 5-29.

146. See *Enhanced Oil Recovery*, U.S. DEPT OF ENERGY, <http://energy.gov/fe/science-innovation/oil-gas/enhanced-oil-recovery> (last visited June 29, 2014).

147. See Standards of Performance, *supra* note 8, at § VII.H.1.

bleach,¹⁴⁸ and omega-3 oils.¹⁴⁹ Although the amount of revenue these strategies could generate is still uncertain, selling or recycling captured carbon could offset the cost of installation and maintenance, weakening arguments that the cost is “greater than the industry could bear and survive.”¹⁵⁰

With ample EIA-backed studies to show the reasonableness of its cost predictions¹⁵¹ and an abundance of case law in the EPA’s favor,¹⁵² a reviewing court should not hold the New Source Rule arbitrary or capricious because of costs. But because CCS is not yet widely available, a court may find that there is insufficient literature to conclude the costs are not “exorbitant.” Although the next Section also argues that the EPA has sufficient data to satisfy the achievable and “adequately demonstrated” prongs of the BSER definition, the shortage of CCS projects is the weakest aspect of the New Source Rule.

*B. The EPA Has Provided Sufficient Data to Show That CCS Is
“Adequately Demonstrated”*

Because so few projects are currently underway in the United States, none of which are complete,¹⁵³ the agency may be skating on thin ice when it comes to demonstrating that CCS is achievable and adequately demonstrated.¹⁵⁴ Ultimately, the D.C. Circuit permits the EPA to make reasonable predictions based on current technology, and the EPA’s data is likely sufficient to show that the technology can be achieved in the near future.¹⁵⁵ To survive the industry’s attack, the agency will have to prove that the data underlying their predictions about technological feasibility are reliable and scientifically sound.¹⁵⁶

148. See Katherine Ling, *DOE-Backed Project Turning Texas Plant’s CO2 Into Baking Soda, Bleach*, GREENWIRE (Oct. 22, 2014), available at <http://www.eenews.net/greenwire/2014/10/22/stories/1060007729>.

149. See Amanda Peterka, *Startup Trumpets Technology That Turns CO2 Into Fish Oil*, GREENWIRE (Nov. 4, 2014), available at <http://www.eenews.net/greenwire/2014/11/04/stories/1060008349>.

150. See *Portland Cement Ass’n v. Train*, 513 F.2d 506, 508 (D.C. Cir. 1975).

151. See *Standards of Performance*, *supra* note 8, at § VII.F; U.S. ENERGY INFO. ADMIN., *supra* note 140.

152. See, e.g., *Lignite Energy Council v. EPA*, 198 F.3d 930, 934 (D.C. Cir. 1999) (per curiam); *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375, 387–88 (D.C. Cir. 1975).

153. See *supra* notes 92–94 and accompanying text.

154. See Chemnick, *supra* note 7.

155. See *id.*; *Lignite Energy*, 198 F.3d at 934.

156. See, e.g., *Nat’l Lime Ass’n v. EPA*, 627 F.2d 416, 430 (D.C. Cir. 1980); *Bunker Hill Co. v. EPA*, 572 F.2d 1286, 1304 (9th Cir. 1977).

If the coal industry can discredit the adequacy of the EPA's underlying data, it could successfully challenge the regulation.¹⁵⁷ For example, the EPA's regulation in *Bunker Hill* was arbitrary and capricious because they relied on inadequate data.¹⁵⁸ There, the EPA required Idaho's power plants to reduce sulfur dioxide emissions by 82 percent, which would have required the use of new technology—sulfur burners.¹⁵⁹ For the plan to be deemed economically and technologically feasible, the EPA either had to point to “contemporary examples of sulfur burners being used to cure a similar problem in a similar context,” or to rely on expert testimony to show that present technology could solve the power plant's problem.¹⁶⁰ The agency's decision was held as arbitrary and capricious because they failed to demonstrate either of these findings.¹⁶¹

The court has reproached the EPA when it relies on test data showing that the standard is not *continuously* achievable, but typically upholds the rules anyway. For example, in both *Portland Cement v. Ruckelshaus* and *Essex Chemical*, the court expressed concern that the plants could not achieve the standards during periods of abnormal operation (e.g., startup, shutdown, and equipment malfunctions).¹⁶² However, both regulations were upheld.¹⁶³ Courts have also “questioned the significance” of tests on which the EPA has relied when testing conditions are different from conditions required under regulation.¹⁶⁴ For instance, in *Essex Chemical*, the EPA relied on test data from US plants operating at 52 percent capacity and European plants operating at an unknown capacity, but the regulations mandated that the regulated entities must monitor themselves at full capacity.¹⁶⁵ Likewise, in *National Lime v. EPA*, the EPA failed to demonstrate that the testing data on which it relied for rule promulgation was representative of the entire industry—the EPA

157. See *Nat'l Lime*, 627 F.2d at 430 (“Promulgation of standards based upon inadequate proof of achievability would defy the Administrative Procedure Act's mandate against action that is ‘arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.’”).

158. *Bunker Hill*, 572 F.2d at 1291. This case involves a different CAA provision—the SIP program. This section does not specifically use the word “feasible,” but D.C. Circuit case law has interpreted this section to require “the highest emission control level that is technologically and economically feasible.” *Id.* at 1293 (citing *Train v. Natural Res. Def. Council*, 421 U.S. 60 (1975)).

159. See *id.* at 1291.

160. See *id.* at 1294.

161. See *id.*

162. See *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973); *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375, 398–99 (D.C. Cir. 1973).

163. See *Essex Chem.*, 486 F.2d at 433; *Portland Cement*, 486 F.2d at 398–99.

164. See *Nat'l Lime*, 627 F.2d at 430.

165. See *Essex Chem.*, 486 F.2d at 436; see also 40 C.F.R. § 60.85(b) (2014).

did not adequately show that its testing data "reflects consideration of the range of relevant variables that may affect emissions in different plants."¹⁶⁶ However, the court upheld the EPA's regulations in both of these cases despite its misgivings about the underlying literature.¹⁶⁷

Judges are reluctant to question the adequacy of the EPA's studies, due partially to the EPA's ability to make reasonable projections about the future and to balance the various Section 111(a)(1) factors.¹⁶⁸ In *Sierra Club v. Costle*, the D.C. Circuit upheld a Section 111 regulation requiring a 90 percent median reduction in sulfur dioxide despite the fact that no data on the record showed that the standard had actually been achieved continuously by any facility operating at the time of the rule's promulgation.¹⁶⁹ There, challenging lime and limestone system-based utility companies could only meet the standard by installing flue gas desulfurization (FGD), a new technology at the time.¹⁷⁰ The agency predicted that the standard was achievable based on a combination of projected well-designed future plants and existing plants: the very few US limestone facilities that employed FGD technology and that *almost* met the standard, US non-limestone systems achieving the 90 percent standard by employing FGD technology, and Japanese facilities that employed FGD technology and met the standard.¹⁷¹ The court noted that none of these data sources alone would have sufficed for the EPA to show that the standard was achievable or "adequately demonstrated."¹⁷² But the court recognized the CAA's technology-forcing purpose, maintained the EPA's authority to "hold the industry to a standard of improved design and operational advances," and upheld the regulation.¹⁷³

The D.C. Circuit has also held that a technology is "achievable" if the EPA reasonably projects based on existing technology that it will be widely available in the future.¹⁷⁴ The court has upheld prior NSPS

166. See *Nat'l Lime*, 627 F.2d at 433.

167. See *id.*; *Essex Chem.*, 486 F.2d at 436.

168. See *Lignite Energy Council v. EPA*, 198 F.3d 930, 933 (D.C. Cir. 1999) (per curiam); *Portland Cement*, 486 F.2d at 387-88.

169. See *Sierra Club v. Costle*, 657 F.2d 298, 356 (D.C. Cir. 1981).

170. See *id.* at 324.

171. See *id.* at 362.

172. See *id.* at 362-63 ("The Electric Utilities argue and we are inclined to agree that [data based on non-lime systems] is not conclusive since EPA specified that the standards were based on lime or limestone systems, and not the more expensive and less available regenerative systems, or systems using reagents and additives more reactive than lime. . . . Thus we cannot accept EPA's 92 percent median solely on the basis of evidence that only one commercial scale plant and one small pilot unit can almost but not quite meet the standard.").

173. See *id.* at 364.

174. See *Portland Cement*, 486 F.2d at 387-88 (D.C. Cir. 1973).

regulations that were difficult to achieve, such as the regulation in *Essex Chemical* that the challenging plant could only achieve three times out of nineteen.¹⁷⁵ Additionally, the Senate Report on this section indicated that the technology was not required to be “in actual routine use somewhere,”¹⁷⁶ and the House Report specified that a technology is deemed achievable as long as it is not “a purely theoretical or experimental means of preventing or controlling air pollution.”¹⁷⁷

CCS appears to meet these requirements. Although it is not “in actual routine use” yet, the technology is not purely theoretical or experimental—two coal-fired domestic CCS projects are over 75 percent complete, and two other facilities have begun incorporating CCS into their construction.¹⁷⁸ Additionally, four commercial coal-fired CCS facilities exist in other countries,¹⁷⁹ other demonstration projects are underway in the United States and other countries,¹⁸⁰ and ongoing research on geologic sequestration demonstrates promising and safe future prospects.¹⁸¹ Finally, carbon injection has been used for over forty years as part of enhanced oil recovery techniques, demonstrating the technology’s feasibility.¹⁸² With this data, the EPA has reasonably predicted, based on “adequately demonstrated” existing technology, that the standard is “achievable” through CCS.¹⁸³

The EPA likewise reasons that it has made reasonable predictions based on existing technology in the United States and abroad.¹⁸⁴ In the proposal, the EPA cites a number of studies that all

175. See *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 437 (D.C. Cir. 1973).

176. See *Portland Cement*, 486 F.2d at 391 (quoting S. REP. NO. 9-1196 (1970)).

177. See H. REP. NO. 91-1146, at 5365 (1970).

178. See Standards of Performance, *supra* note 8, at § I.B.3.

179. See *Sleipner CO₂ Injection*, GLOBAL CCS INSTITUTE, <http://www.globalccsinstitute.com/project/sleipner%2%A0co2-injection> (last updated Sept. 7, 2014) (located in the North Sea); *Snohvit CO₂ Injection*, GLOBAL CCS INSTITUTE, <http://www.globalccsinstitute.com/project/sn%C3%B8hvit-co2-injection> (last updated Sept. 7, 2014) (located in Barents Sea); *Gas Production at In Salah*, IN SALAH GAS, <http://www.insalahco2.com/> (last visited Nov. 12, 2014) (located in Algeria); *Weyburn-Midale Fact Sheet: Carbon Dioxide Capture and Storage Project*, MASS. INST. OF TECH., <http://sequestration.mit.edu/tools/projects/weyburn.html> (last modified Dec. 19, 2013) (located in Canada).

180. See *Projects*, GLOBAL CCS INSTITUTE, <http://www.globalccsinstitute.com/projects/browse> (last visited Nov. 12, 2014).

181. See U.S. ENVTL. PROT. AGENCY, REPORT OF THE INTERAGENCY TASK FORCE ON CARBON CAPTURE AND STORAGE 9 (2010), available at <http://www.epa.gov/climatechange/Downloads/ccs/CCS-Task-Force-Report-2010.pdf> (highlighting that the four international projects have demonstrated safe and reliable capture and storage).

182. See *supra* note 146 and accompanying text.

183. See Standards of Performance, *supra* note 8, at § I.B.3.

184. See *id.*

conclude there are no “insurmountable technological, legal, institutional, regulatory or other barriers that prevent CCS from playing a role in reducing GHG emissions.”¹⁸⁵ Although none of the previously cited facilities in the United States have deployed the entire CCS process yet, each of the individual steps (capture, transport, and storage) have been implemented on a commercial scale in some capacity.¹⁸⁶ Across the world, thirty-seven projects are currently deploying both capture and injection.¹⁸⁷ Unless the industry can uncover serious flaws in the EPA’s studies, a reviewing court should follow *Sierra Club v. Costle*, and hold that the combination of existing domestic and foreign technology and projected future projects are sufficient to demonstrate that CCS is achievable and adequately demonstrated, despite the fact that no US facility has employed it commercially as of now.¹⁸⁸

To summarize, industry groups have succeeded with arbitrary and capricious challenges by showing flaws in EPA’s data or reasoning,¹⁸⁹ but no industry arbitrary and capricious challenge under NSPS provisions of the CAA has ever succeeded.¹⁹⁰ A reviewing court should follow these precedents when evaluating a coal-backed arbitrary and capricious challenge, holding that the EPA’s data reasonably predicts that CCS is achievable and adequately demonstrated. Unfortunately for the EPA, this will not be the last

185. U.S. ENVTL. PROT. AGENCY, *supra* note 181, at 7; see J.J. DOOLEY ET AL., U.S. DEPT OF ENERGY, PNNL-18520, AN ASSESSMENT OF THE COMMERCIAL AVAILABILITY OF CARBON DIOXIDE CAPTURE AND STORAGE TECHNOLOGIES AS OF JUNE 2009 (2009), available at http://www.pnl.gov/main/publications/external/technical_reports/PNNL-18520.pdf.

186. See, e.g., *NETL’s Carbon Capture, Utilization, & Storage Database—Ver. 4*, U.S. DEPT OF ENERGY, <http://www.netl.doe.gov/research/coal/carbon-storage/cs-global/database/> (last visited July 1, 2014).

187. See *id.*

188. Cf. *Sierra Club v. Costle*, 657 F.2d 298, 313 (D.C. Cir. 1981).

189. See, e.g., *Bunker Hill Co. v. EPA*, 572 F.2d 1286, 1304 (9th Cir. 1977).

190. See, e.g., *Wis. Elec. Power Co. v. Reilly*, 893 F.2d 901, 912 (7th Cir. 1990) (holding that EPA’s refusal to compare “representative” pre-renovation and “actual” post-renovation emissions, to determine whether the plant was subject to new source performance standards, was not arbitrary and capricious); *Puerto Rican Cement Co. v. EPA*, 889 F.2d 292, 296 (1st Cir. 1989) (holding that EPA’s comparison of actual, historical emissions with potential future emissions was not arbitrary and capricious); *Potomac Elec. Power Co. v. EPA*, 650 F.2d 509, 520 (4th Cir. 1981) (holding that, despite two flaws in reasoning, a regional administrator’s denial of an exemption was not arbitrary and capricious because correcting the flaws did not change the ultimate result); *Nat’l Asphalt Pavement Ass’n v. Train*, 539 F.2d 775, 784–86 (D.C. Cir. 1976) (holding that EPA’s determination that constructing new plants would “significantly contribute” to future air pollution was not arbitrary and capricious because it properly weighed rate of emissions, state and local regulations, and “the number of existing plants”); *Natural Res. Def. Council, Inc. v. EPA*, 507 F.2d 905, 917 (9th Cir. 1974) (holding that EPA’s approval of Arizona’s scheme for “new and modified sources of pollution” was not arbitrary and capricious).

industry-backed challenge the agency will expend its limited resources defending.

III. DOES THE COAL INDUSTRY HAVE A BETTER IDEA?: SOLUTION-BASED INFORMAL RULEMAKING

To avoid costly regulations, industry groups frequently utilize science-based arbitrary and capricious litigation¹⁹¹ to achieve a remand, forcing the EPA to rethink their regulations. Considering recent national political shifts, this could prove to be a highly effective strategy for industry groups.¹⁹² Additionally, regulatory reform laws, such as the Data Quality Act, provide interest groups with a tool to delay rule finalization.¹⁹³ Rather than merely attempting to postpone impending regulations, interest groups should instead affirmatively propose their own solutions, accounting for the same factors that Congress has mandated the EPA to consider. When it comes to the New Source Rule, the coal industry will assuredly litigate and possibly utilize a Data Quality Act petition to delay the process.¹⁹⁴ Perhaps the coal industry is correct; if all facilities face troubles similar to Kemper County, CCS may not be the best system of emissions reduction for coal-fired plants after all.¹⁹⁵ Legislation amending the APA could allow the industry to suggest an alternative best system of emissions reductions rather than resist the potential solution and continue emitting as usual.

A. Regulated Entities' Current Role in the Rulemaking Process

The traditional notice-and-comment process allows any interested party to comment after a notice of proposed rulemaking is published in the Federal Register.¹⁹⁶ Although any interested person

191. See, e.g., *Appalachian Power Co. v. EPA*, 135 F.3d 791, 801–02 (D.C. Cir. 1998) (analyzing whether EPA's use of a specific modeling technique was arbitrary and capricious); *Nat'l Lime Ass'n v. EPA*, 627 F.2d 416, 431–33 (D.C. Cir. 1980) (holding an EPA regulation as arbitrary and capricious because the agency failed to account for certain scientific data).

192. See, e.g., Evan Lehmann & Nathanael Massey, *New Republican Congress May Challenge Obama's Climate Rule*, SCIENTIFIC AMERICAN (Nov. 5, 2014), <http://www.scientificamerican.com/article/new-republican-congress-may-challenge-obama-s-climate-rule/>.

193. See Chris Mooney, *Thanks to a Little-Known Piece of Legislation, Scientists at the EPA and Other Agencies Find Their Work Questioned Not Only by Industry, But by Their Own Government*, BOS. GLOBE, Aug. 28, 2005, <http://www.boston.com/news/globe/ideas/articles/2005/08/28/interrogations/?page=full>.

194. See Chemnick, *supra* note 10.

195. See *supra* notes 112–15 and accompanying text.

196. See 5 U.S.C. § 553(c) (2012).

may submit "written data, views, or arguments,"¹⁹⁷ interest groups tend to dominate the comment process.¹⁹⁸ The agency proposing the rule then must "consider[] . . . the relevant matter presented" and promulgate a final rule.¹⁹⁹

Despite the seemingly participatory process, scholars have critiqued the informal rulemaking process for its adversarial nature, noting that parties rarely use the opportunity for legitimate problem solving.²⁰⁰ Furthermore, both industry and environmentalist groups have an equal opportunity to submit written comments.²⁰¹ This often leaves the EPA forced to propose a compromise between two opposite ends of the policy spectrum, typically leaving both groups unsatisfied and ready to litigate after the rule has been finalized.²⁰²

In addition to litigation, interest groups may utilize regulatory reform laws such as the Data Quality Act to slow the rulemaking process.²⁰³ This law was passed as part of an appropriations rider, and many members of Congress were not even aware of its existence.²⁰⁴ It requires agencies to follow up on petitions for "the correction of information" such as scientific data, effectively allowing interest groups to play the role of peer reviewer.²⁰⁵ Although the purpose of the Data Quality Act was to improve the quality of information underlying agency regulations, it threatens regulatory gridlock by adding superfluous data requirements.²⁰⁶ A government watchdog group, the Center for Regulatory Effectiveness, has already taken initial steps that suggest they may attempt to challenge the New Source Rule's scientific studies through this Act.²⁰⁷

Administrative processes meant to encourage constructive debate do exist, however. Instead of traditional, adversarial notice-and-comment rulemaking, agencies may choose to engage in

197. *Id.*

198. See Dorit Rubenstein Reiss, *Tailored Participation: Modernizing the APA Rulemaking Procedures*, 12 N.Y.U. J. LEGIS. & PUB. POL'Y 321, 332 (2009).

199. § 553(c)-(d).

200. See, e.g., Jody Freeman, *Collaborative Governance in the Administrative State*, 45 UCLA L. REV. 1, 11 n.28 (1997).

201. See § 553(c) ("[T]he agency shall give interested persons an opportunity to participate . . .").

202. See Freeman, *supra* note 200, at 19.

203. See Mooney, *supra* note 193.

204. See Wagner, *supra* note 104, at 68 n.24.

205. See *id.* at 69.

206. Cf. *id.* at 81, 86-87.

207. See Chemnick, *supra* note 10.

“negotiated rulemaking.”²⁰⁸ This optional process is meant to facilitate compromise between agencies and regulated entities.²⁰⁹ During negotiated rulemaking, a committee comprised of affected organizations’ representatives negotiates in person with the agency, which is overseen by a neutral “convenor.”²¹⁰ The final rule then memorializes the consensus the parties have reached.²¹¹ This process is now codified as an amendment to the APA,²¹² and was proposed to expedite the rulemaking process and to reduce subsequent litigation.²¹³

Informal rulemaking almost always leads to time-consuming litigation, and laws like the Data Quality Act can clog the regulatory process and prevent rule finalization. Asking interest groups to submit their own solutions through modified informal rulemaking builds on the policy goals of negotiated rulemaking—it would reduce regulatory gridlock and provide interest groups with an opportunity to contribute meaningfully instead of merely blocking the inevitable.²¹⁴

B. Incorporating Solution-Based Proposals into Informal Rulemaking

Submitting solution-based comments during informal rulemaking would allow interested parties and the EPA to cooperatively achieve a BSER determination. Under an amended notice-and-comment process, interested parties could comment as they do today by presenting their own studies, arguments, and suggested changes to the rule.²¹⁵ By taking this approach, judicial review would also work the same way; interest groups could challenge a final rule as arbitrary and capricious, but the deferential standard of review would continue to favor agencies’ well-reasoned decisions.²¹⁶

Alternatively, interested parties could propose an entirely new solution to the regulatory problem—a different type of control technology than CCS, for instance. Parties would be beholden to the same congressionally-mandated factors as the EPA, meaning for a

208. See, e.g., AGRIC. MKTG. SERV., U.S. DEPT OF AGRIC., WHAT IS NEGOTIATED RULEMAKING? 1, available at <http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5089434>.

209. See Cary Coglianese, *Assessing Consensus: The Promise and Performance of Negotiated Rulemaking*, 46 DUKE L.J. 1255, 1261–62 (1997).

210. See AGRIC. MKTG. SERV., *supra* note 208, at 3.

211. See Coglianese, *supra* note 209, at 1257.

212. See Negotiated Rulemaking Act, 5 U.S.C. §§ 561–570 (2012).

213. See Coglianese, *supra* note 209, at 1257; Derek R. McDonald, *Judicial Review of Negotiated Rulemaking*, 12 REV. LITIG. 467, 468 (1993).

214. See Coglianese, *supra* note 209, at 1264–66.

215. See 5 U.S.C. § 553 (2012).

216. See *Chevron, U.S., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 844 (1984).

NSPS, the industry or environmental group would have to appropriately balance costs, achievability, “nonair quality health and environmental impact[s],” and energy requirements.²¹⁷ They would also have to provide sufficient data to justify why their solution is feasible, as the EPA does when it promulgates a rule.²¹⁸ If the parties fail to appropriately consider the CAA’s factors or provide adequate justifications, then the EPA could reasonably reject the proposal, and judges would continue to defer to the EPA’s judgment.²¹⁹ But if parties present a truly workable solution and the EPA ignores their suggestions, it could hurt the agency during judicial review.²²⁰ By failing to consider a practicable alternative, the EPA would have “entirely failed to consider an important aspect of the problem,” and like *State Farm*, the agency’s decision would be set aside as arbitrary and capricious.²²¹

Under this approach, incentives must exist to ensure that parties actually submit solutions rather than mere comments. Requiring solutions as a prerequisite to a successive arbitrary and capricious challenge is probably the most effective way to guarantee solution submissions, but it could also create perverse incentives. For instance, industry or environmentalist groups may propose perfunctory solutions merely to pass the procedural barrier, allowing them to litigate later. Additionally, requiring solutions as a litigation prerequisite would directly contradict the APA, Section 553(c), which currently requires agencies to give any “interested person the right to petition for the issuance, amendment, or repeal of a rule.”²²²

Instead, those parties that submit the most feasible solutions should be rewarded. To properly encourage interest groups to submit quality solutions, courts must play a gatekeeping role. Before an agency’s rule can be struck down as arbitrary and capricious, the interest group challenging the rule should be required to prove that they submitted a viable, feasible solution.²²³ This type of proof would correspond with most modern environmental lawsuits, where judges

217. 42 U.S.C. §7411(a)(1) (2012).

218. See *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

219. See *id.*

220. See *id.*

221. See *id.* at 43, 46.

222. 5 U.S.C. § 553(c) (2012).

223. If a challenging party chooses not to submit a solution-based comment, they will have to contend with *Chevron*, which defers to agency’s well-reasoned decisions. Choosing not to submit a solution may be a viable strategy if the party has a strong argument that the agency acted in direct contradiction to a textually clear statute, because then the reviewing court “must give effect to the unambiguously expressed intent of Congress.” *Chevron, U.S., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842–43 (1984).

frequently decide based on the adequacy and completeness of each side's reasoning.²²⁴ If an interest group cannot prove that their solution is feasible, then judges should continue to defer to the EPA's judgment.²²⁵ But if an interest group submits a truly workable solution and the EPA did not incorporate it into the final rule, *State Farm* cuts against the agency.²²⁶

Solution-based informal rulemaking raises another policy concern though. The process would likely motivate interest groups to tailor scientific studies to their favor when proposing potential technology-based solutions.²²⁷ This would force judges, who generally lack scientific training,²²⁸ to determine the more feasible solution based on potentially conflicting scientific data. They may not be in the best position to decide whether an industry or environmental group's commissioned study is truly impartial, or whether the data has been skewed more favorably toward the party proposing the solution.²²⁹ However, judges often rule on the adequacy of scientific data in arbitrary and capricious challenges; their final decisions hinge on whether the information presented is complete and well-reasoned.²³⁰ With solution-based comments, judges should continue to pay careful attention to the quality of each side's data, and should be particularly skeptical of studies that have been commissioned by industry or environmentalist groups. Having untrained judges making the final call is admittedly not ideal.²³¹ However, solution-based informal rulemaking would encourage multiple perspectives both inside and outside the courtroom, and is therefore superior to the current state of regulatory impasse.

One final obstacle to this solution is that it would require amending the APA.²³² Legislative fixes, especially those connected to

224. See *supra* Part II.B.

225. See *supra* Part II.B.

226. See *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43.

227. See, e.g., Thomas O. McGarity, *Our Science Is Sound Science and Their Science Is Junk Science: Science-Based Strategies for Avoiding Accountability and Responsibility for Risk-Producing Products and Activities*, 52 U. KAN. L. REV. 897, 901 (2004) (arguing that risk-producing regulated entities rely on science that "is a strategically manipulated caricature of the scientific process in which perception, not objective truth, is the primary goal").

228. See Justice Stephen Breyer, *Science in the Courtroom*, ISSUES IN SCI. & TECH., Summer 2000, available at <http://issues.org/16-4/breyer/> ("A judge is not a scientist, and a courtroom is not a scientific laboratory.").

229. See Wagner, *supra* note 104, at 96–97 ("Moreover, in contrast to the agencies, judges have neither the information nor the expertise to competently adjudicate challenges to the quality of agency science.").

230. See *supra* Part II.B.

231. See, e.g., Wagner, *supra* note 104, at 96–97.

232. A similar process (negotiated rulemaking) was codified as an APA amendment in 1990. See Negotiated Rulemaking Act, 5 U.S.C. §§ 561–570 (2012).

major statutes like the APA, are unlikely in the current political climate.²³³ Although this solution may not be immediately feasible, future litigious interest groups may frustrate regulations to the point of amendment necessity.²³⁴

IV. CONCLUSION

As the rulemaking process works today, interest groups' challenges prevent the EPA from completing their congressionally mandated regulatory tasks. In the case of the New Source Rule, the coal industry is dissatisfied with the EPA's determinations, and will demand the agency to come up with a more cost-efficient and feasible solution than CCS. But if the coal industry were asked to come up with its own solutions, could it do a better job? Although incorporating solution-based comments into informal rulemaking entails some obstacles, it would move environmental regulations forward, stimulate meaningful debate, and give interest groups a significant voice in rulemaking.

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233. See Derek Willis, *A Do-Nothing Congress? Well, Pretty Close*, N.Y. TIMES (May 28, 2014), http://www.nytimes.com/2014/05/28/upshot/a-do-nothing-congress-well-pretty-close.html?_r=0.

234. See Mooney, *supra* note 193.

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